We claim:

1. A method for identifying a mutant mammalian IL-22 with modified ability to dimerize and/or bind an IL-22 receptor, said method comprising the steps of:

   a) constructing a three-dimensional structure of hIL-22 defined by the atomic coordinates shown in Table 4;
   b) employing the three-dimensional structure and modeling methods to identify an amino acid involved in stabilizing an IL-22 dimer, and/or to identify an amino acid involved in receptor binding;
   c) producing a mammalian IL-22 having a mutation at an amino acid identified in (b); and
   d) assaying said mutant IL-22 to determine the ability of said mutant to dimerize as compared to an IL-22 control, wherein a difference in dimerization between said mutant and said control is indicative of a modified ability to dimerize, and/or assaying said mutant IL-22 to determine the ability of said mutant to bind to the IL-22 receptor as compared to an IL-22 control, wherein a difference in binding between said mutant and said IL-22 control is indicative of a modified ability to bind the IL-22 receptor.

2. The method of claim 1, wherein said mutation site is at a dimerization interface and/or an IL-22-receptor-binding site.

3. The method of claim 2, wherein the dimerization interface is comprised of amino acids at positions corresponding to position 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, or 179 of SEQ ID NO: 2, and/or wherein the IL-22-receptor binding site is Region 1 or Region 2.

4. The method of claim 2, wherein the mutant IL-22 comprises a mutation at one or more positions corresponding to position 44, 48, 49, 57, 61, 64, 73, 75, 83, 166, 168, 175, 176, or 179 of SEQ ID NO: 2, and/or wherein the mutant IL-22

comprises a mutation at one or more positions corresponding to position 61, 70, 71, 162, 166, or 169 of SEQ ID NO: 2, and/or wherein the hIL-22 mutant comprises at least a mutation at one or more positions corresponding to position 98, 99, 100, 101, 102, 103, 104, 154, 155, 156, or 157 of SEQ ID NO: 2.

5. The method of claim 1, wherein the mutant IL-22 is human.

6. A mutant IL-22 comprising at least one amino acid substitution in Region 1 or Region 2.

7. The mutant IL-22 of claim 6, wherein the mutant IL-22 comprises a mutation at one or more positions corresponding to position 61, 70, 71, 162, 166, or 169 of SEQ ID NO: 2.

8. The mutant IL-22 of claim 6, wherein the mutant IL-22 comprises a mutation at one or more position corresponding to position 98, 99, 100, 101, 102, 103, 104, 154, 155, 156, or 157 of SEQ ID NO: 2.

9. The mutant IL-22 of claim 6 comprising Region 1, wherein the mutant IL-22 comprises a mutation at one or more positions corresponding to position 61, 70, 71, 162, 166, or 169 of SEQ ID NO: 2.

10. The mutant IL-22 of claim 6 comprising Region 2, wherein the mutant IL-22 comprises a mutation at one or more positions corresponding to position 98, 99, 100, 101, 102, 103, 104, 154, 155, 156, or 157 of SEQ ID NO: 2.

11. A mutant IL-22 comprising at least one mutation at an IL-22 dimerization interface.

12. The mutant IL-22 of claim 11, wherein the dimerization interface is comprised of amino acids at positions corresponding to position 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, or 179 of SEQ ID NO: 2.

13. The mutant IL-22 of claim 12, wherein the mutant IL-22 comprises a mutation at one or more position corresponding to position 44, 48, 49, 57, 61, 64, 73, 75, 83, 166, 168, 175, 176 or 179 of SEQ ID NO: 2.

14. The mutant IL-22 of claim 11, wherein the mutant IL-22 comprises a mutation at one or more positions in the dimerization interface, wherein that position is involved in stabilizing a dimmer of IL-22.

15. The mutant IL-22 of claim 14, wherein the mutation is selected from one or more of the group consisting of:

a) an amino acid at a position corresponding to position 175 or 166 of SEQ ID NO: 2;
b) an amino acid at a position corresponding to position 57 or 176 of SEQ ID NO: 2;
c) an amino acid at a position corresponding to position 73 or 83 of SEQ ID NO: 2;
d) an amino acid at a position corresponding to position 44 or 64 of SEQ ID NO: 2;
e) an amino acid at a position corresponding to position 175 or 168 of SEQ ID NO: 2;
f) an amino acid at a position corresponding to position 176 or 75 of SEQ ID NO: 2;
g) an amino acid at a position corresponding to position 48 or 61 of SEQ ID NO: 2;
h) an amino acid at a position corresponding to position 44 or 166 of SEQ ID NO: 2;
i) an amino acid at a position corresponding to position 61 or 179 of SEQ ID NO: 2; and
j) an amino acid at a position corresponding to position 49 or 61 of SEQ ID NO: 2.

16. The mutant hIL-22 of claim 15, wherein the amino acid at a position corresponding to position 175 of SEQ ID NO: 2 is any amino acid except arginine and lysine.

17. The mutant IL-22 of claim 15, wherein the amino acid at a position corresponding to position 166 of SEQ ID NO: 2 is any amino acid except glutamate, aspartate, glutamine, asparagine, serine, threonine and cysteine.

18. The mutant IL-22 of claim 15, wherein the amino acid at the position corresponding to position 176 of SEQ ID NO: 2 is any amino acid except arginine, lysine, asparagine and glutamine.

19. The mutant IL-22 of claim 15, wherein the amino acid at the position corresponding to position 73 of SEQ ID NO: 2 is any amino acid except arginine and lysine.

20. The mutant IL-22 of claim 15, wherein the amino acid at the position corresponding to position 44 of SEQ ID NO: 2 is any amino acid except arginine and lysine.

21. The mutant IL-22 of claim 15, wherein the amino acid at a position corresponding to position 64 of SEQ ID NO: 2 is any amino acid except glutamate, aspartate, glutamine, asparagine, serine, threonine and cysteine.

22. The mutant IL-22 of claim 15, wherein the amino acid at a position corresponding to position 168 of SEQ ID NO: 2 is any amino acid except glutamate, aspartate, glutamine, asparagine, serine, threonine and cysteine.

23. The mutant IL-22 of claim 15, wherein the amino acid at the position corresponding to position 61 of SEQ ID NO: 2 is any amino acid except arginine and lysine.

24. The mutant IL-22 of claim 15, wherein the amino acid at the position corresponding to position 49 of SEQ ID NO: 2 is any amino acid except glutamine, asparagine, glutamate and aspartate.